

# **NIOSH SUMMARY ANNUAL CENTER REPORT**

## **JOHNS HOPKINS EDUCATION AND RESEARCH CENTER FOR OCCUPATIONAL SAFETY AND HEALTH**



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**Submitted by:**

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**Abstract:** The Johns Hopkins Education and Research Center (ERC) prepares leaders in occupational health and safety research and practice. Master's and doctoral (PhD, DrPH, ScD) training is provided in occupational and environmental hygiene (1.5-year MHS; 4- to 5-year PhD, DrPH; 11 to 18 trainees per year) occupational and environmental health nursing (1-year MPH; 1.5-year MSN MPH; 4- to 5-year PhD, DrPH; 5 to 7 trainees per year), biomarkers of occupational exposure and susceptibility research training (4- to 5-year PhD, DrPH; 5 trainees per year), occupational injury epidemiology and prevention (4- to 5-year PhD; 3 to 4 trainees per year), and residency training in occupational medicine (2 years; 4 to 5 trainees per year). Continuing education and outreach components bring the strengths of the core programs to more than 1,000 practicing occupational health and safety professionals per year. A pilot project research training program provides research study support to students and junior faculty at academic institutions within our region.

A strong interdisciplinary emphasis underlies all ERC training activities, and the importance of such interaction and collaboration is communicated to students in courses, seminars, and informal discussions, and is reinforced through research and professional practice. The excellence of our medicine residency and hygiene programs has been recognized through official approval by their respective accrediting bodies. Each academic program upholds the strong research tradition of the school, and we strive to address the priority areas set by NIOSH in the National Occupational Research Agenda (NORA). Research activities in each academic program address topics relevant to the sector-based NORA focus. Our pilot project research training program also enables faculty and students to advance that agenda.

**Public Health Relevance:** The mission of this ERC is to provide an integrated, interdisciplinary approach to training researchers and practitioners in the field of occupational health. Our ultimate objective is to protect the health and safety of all working individuals. As the only ERC in Region III, this center is dedicated to meeting regional and national needs through occupational safety and health practitioner and researcher training.

**Primary Accomplishments (by Program):**

Occupational and Environmental Hygiene (OEH) (Patrick N. Breysse, PhD, CIH) – During this period, 21 masters and 8 doctoral students were enrolled in our program, while 5 master's students graduated during this period. This program continues to be a leader in research and practice education, and was granted ABET certification this year. During the 2011-2012 academic year, 11 students were enrolled in our new online option for the master's program. This program is growing in enrollment. OEH program faculty continue to attract extensive interdisciplinary research support and maintain a productive publication record that frequently includes student co-authors. During 2011-2012, OEH faculty had 28 peer-reviewed publications, 12 of which included ERC students as co-authors. The program operates with four full-time core tenure-track faculty, including the recently appointed Dr. D'Ann Williams, as well as a number of supporting and affiliated faculty. Planning is underway to recruit a new tenure track faculty member. Dr. Breysse recently served as the chair of the ACGIH and as a member and chair of NIOSH's Safety and Occupational Health grant review study section, and both Drs. Breysse and Lees serve on advisory panels for groups such as the EPA and the National Academy of Sciences.

Occupational and Environmental Health Nursing (OEHN) (Sheila Fitzgerald, MSN, ANP, PhD) – During this period, two master's and three doctoral students were enrolled in the OEHN program, and two master's students and two doctoral students graduated. Both of our most recent master's graduates are working in OSH; one is lead clinical investigator for a city health system in upstate New York, and the other is working as a nurse practitioner for a large employee health and wellness center in Maryland. One of our doctoral graduates is an instructor in the Johns Hopkins School of Nursing, and the other now holds a faculty position at another prominent School of Nursing in Region III. Enrollment in our online course, *Occupational Health and Vulnerable Worker Populations*, has more than tripled since its initiation. A recent shift in Dr. Fitzgerald's teaching duties in the School of Nursing, from the Nurse Practitioner program to the Public Health Nursing Graduate program, brings her greater involvement with the growing MSN MPH program and allows her to deliver occupational and environmental health nursing content to students who are not necessarily enrolled in the OEHN program. Dr. Fitzgerald's expertise in education extends to her outreach activities; as an elected member of the Board of Directors of the Maryland Area Association of Occupational Health Nurses, she chairs the Education Committee. At the university level, Dr. Fitzgerald was reappointed to a third term on the Diversity Leadership

Council, a university level committee that makes recommendations to the university president on issues regarding diversity. For example, she provided input into the redesign of the Johns Hopkins Bloomberg School of Public Health Web site to improve its appropriateness for underrepresented minorities and individuals with disabilities. We have increased our efforts to recruit new students by reaching out to community health nurses, nurse practitioners, and Hispanic and black nurses associations. We continue to engage our advisory board in assisting us with program planning and recruitment strategies. Board members serve as preceptors for OEHN students and as sources of employment opportunities. Dr. Cadorette is a member of the Institutional Review Board at the Department of Energy, thus utilizing her expertise as a principal investigator of a project that conducts medical surveillance for former DOE workers. Dr. Agnew was recently appointed to the National Advisory Committee for Occupational Safety and Health, which advises the Assistant Secretary of Labor for OSHA. Drs. Agnew and Fitzgerald advise student-led projects to educate and train Hispanic day laborers on safety and to conduct a tuberculosis screening program for immigrants.

**Occupational and Environmental Medicine Residency (OEMR) (Virginia Weaver, MD, MPH)** – Our OEMR program had three residents during this period. One trainee graduated in June 2012 and is completing her MBA coursework (she was an MPH/MBA candidate) at the Johns Hopkins Bloomberg School of Public Health while working part-time in an OEM clinic. Two residents are continuing and were joined by two new residents in July 2012. During this period, one resident was a recipient of the Occupational Physician Scholarship Fund. Resident research projects were presented at the following conferences: 2011 APHA, 2012 AOHC, 2012 American College of Medical Quality National Conference, and the 2012 New England Science Symposium. During this period, we continued our outreach efforts. Dr. Weaver gave OEM grand rounds at two Baltimore-based internal medicine programs and at one area magnet high school for the sciences. OEM faculty at the University of Maryland continue to provide grand rounds and electives for medical students and internal medicine residents. We have three Johns Hopkins medical students interested in OEM electives with us and/or in OEM careers. We are completing the transition of our program to increase the clinical content in the first year and to comply with the other new ACGME requirements. We are also preparing for our ACGME site visit.

**Biomarkers of Occupational Exposure and Susceptibility (BOES) (Paul T. Strickland, PhD)** – During this period, the BOES program had six doctoral candidates in training. Recent graduates have successfully transitioned to employment at government agencies and academic institutions. NIOSH support continues to leverage independent support for student training and is supplemented by tuition support from the department and school diversity fellowships. BOES faculty demonstrated a high level of research productivity during this period and continued to support doctoral-level training in other ERC programs and collaborating departments. Faculty make major contributions to the field, as evidenced by published papers, review articles, and book chapters (many of which include students as authors), as well as numerous presentations at national and international conferences and participation on national and international professional committees. Dr. Strickland was appointed to serve as a member of the Review Panel on Benzo[a]pyrene of the EPA Science Advisory Board, and he continues to serve on the Standing Scientific Review Panel of the Lymphoma Foundation of America. Dr. Ana Navas-Acien continued to serve as a member of the WHO Expert Panel on Global Burden of Disease Caused by Lead and on the NAS Standing Committee on Use of Emerging Science for Environmental Health Decisions. Dr. Brian Schwartz serves as co-director of the Joint Geisinger-Johns Hopkins Environmental Health Institute and was appointed to the NAS Expert Committee on Potential Health Risks from Recurrent Lead Exposure to DOD Firing Range Personnel.

**Occupational Injury Epidemiology and Prevention (OIEP) (Keshia Pollack, MPH, PhD)** – During this period, one of our five program trainees successfully defended her dissertation and graduated in December 2011; she is now working as director of building science services at a large medical system, where she is exploring the impact of building design on the health and safety of their employees. The remaining four students each received (or now receive) some degree of ERC funding. Their research topics are as follows: one trainee (a federal employee) is working on her dissertation, which will expand the knowledge on needlestick injury prevention in surgical settings; another trainee is interested in work-related distracted driving; a third trainee is studying risk-based decision making; and a final trainee is interested in studying the risk of violence to EMS providers. OIEP faculty continued to demonstrate a

high level of research productivity, as evidenced by peer-reviewed publications, book chapters, conference presentations, and awarded grants and contracts. Their research includes: evaluating workplace policies to prevent injuries; work-related disability and return to work post-injury; self-management interventions for injury; injury prevention among first responders, manufacturing workers, transportation workers, and paid professional athletes; and motor vehicle crashes in the military. Students took part in many of these research projects and are coauthors on the resulting publications. We have strengthened our existing partnerships with the National Transportation Safety Board, the U.S. Army/Department of Defense, Major League Baseball and the Baltimore Orioles, and the Maryland State Firemen's Association.

**Pilot Project Research Training (PPRT) (Peter S.J. Lees, PhD, CIH)** – We continue to offer the annual Pilot Projects Research Training Request for Proposals to all NIOSH-supported institutions and other institutions engaged in occupational safety and health research in Region III. This year, requests for proposals were distributed to 37 program directors at 22 different institutions. In response, six applications were received — five from doctoral or post-doctoral students at the Johns Hopkins Bloomberg School of Public Health (three pre-doctoral and two post-doctoral) and one joint application from the Indiana University of Pennsylvania and the University of Pittsburgh Health (pre-doctoral). Three proposals were funded: *Total Pro-inflammatory Potential of Occupational Exposures to Agricultural Dusts; Occupational Health Impacts of Zoonotic Pathogen Exposures among Swine CAFO Workers; and A Mixed Methods Examination of Distracted Driving in Commercial Truck Drivers*.

**Continuing Education and Outreach (CE) (Mary Doyle, RN, MPH, COHN-S/CM)** – During this period, the CE program continued to participate in the Healthy Homes training network as a university partner by providing multiple courses for the Delaware Department of Health. We worked closely with local professional associations (including AAOHN, ASSE, AIHA, ACOEM, and AHMP) to plan continuing education courses and to support monthly meetings. Ms. Doyle is on the executive planning committee for the nursing Regional Occupational Health Conference, the AIHA/ASSE annual conference, the AHMP annual conference, and the Washington Metropolitan Area Construction Safety Association conference, and she served as an officer on the executive board for the Metropolitan Washington chapter of AAOHN. Ms. Doyle represents the four local chapters of AAOHN at the Joint Environmental, Health and Safety Associations of the Washington Metropolitan areas. This group discusses best practices of professional associations and coordinates continuing education activities among all groups. Ms. Doyle also served on the board of directors for the Public Employees Safety Association (PESA) and helps plan their conferences several times per year. The ERC collaborated with Organization Resources Counselors Worldwide to organize the Corporate Health Directors Network meetings, which were held twice during the grant year. Our CE program had 1,073 trainees during this period.

**Summary:** During this reporting period, the Johns Hopkins ERC has enhanced the nation's professional OSH workforce in several ways, with both immediate and long term benefits that are consistent with the original purpose of ERCs. NIOSH support has launched careers in research and practice in OSH and has allowed us to provide (and mentor students who will provide) leadership and expertise in the field. Perhaps most important are the enduring benefits to the field that have been generated by producing a significant proportion of graduates who have assume positions in academia — thus influencing the recruitment and preparation of future OSH professionals. The extent of our outreach and continuing education programs substantially increases the occupational safety and health resources available to our region and beyond. We will continue to respond to emerging issues that affect the health of workers and will contribute to their solutions. Our goals for the next funding period are to continue the leadership provided by faculty and the recruitment of students who will follow their lead. We will focus on the recruitment of minority students, and we will pursue all avenues to increase student support.